

USSR

KOTOV, V. F., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, 1971, pp 20-22

in the matrix. Short-time tensile tests at 1100° C of nichrome reinforced with 450-micron-diameter VA tungsten wire showed that 40 vol. percent of the strengthening fiber provides over an 8-fold increase in the ultimate strength of the matrix and over a 15-fold increase in yield strength. The long-time strength of the resultant composite is 40-50 percent higher than for the best heat-resisting nickel alloys.

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" 5 "

Composite Materials

UDC 669.71*782'3

USSR

FONSHTEYN, N. M., TIKHOMIROVA, G. N., KOTOV, V. F., and SHVARTS, V. I.

"Tungsten Fibers As a Strengthener for A Heat-Resisting Composite"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, 1971, pp 11-14

Abstract: The authors studied characteristics of tungsten fibers which determine the possibility of their use as reinforcement in a heat-resisting nichrome-base composite. Wire specimens of so-called "non-sag" VA tungsten, 25-500 mm in diameter, were used for the study, as well as the tungsten alloys VAR-5 and VAM-5. To estimate the strengthening effect of the reinforcing fibers on the heat resistance of the composite, a determination was made of wire strength after the technological operations of the composite fabrication cycle. It was found that the short-time strength at 1100° C of "raw" and annealed 0.15-mm-diameter speci-

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FDNSHTEYN, N. M., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, 1971, pp 11-14

mens of VA wire is 92 and 84 kg/mm², respectively. Prolonged exposure to elevated temperatures (800-1200° C) causes almost no change in the structure and mechanical properties of the investigated tungsten alloys. However, surface contact between tungsten and its alloys and nickel even at 800° C causes considerable loss of wire ductility and microhardness, and at 1200° C results in appreciable grain growth on the wire surface. High long-time heat resistance can be provided for a nichrome-base composite with tungsten strengthener by using special protective coatings to protect the reinforcement against the action of the matrix, as well as by changing the composition of the matrix and alloying the reinforcing material.

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UDC 621.384.664

USSR

GALYAYEV, N. A., GOLOVINA, N. I., GRACHEV, M. I., GRIDASOV, V. I., GUBRIYENKO, K. I., YEREMENKO, Ye. V., ZAPOL'SKIY, V. N., ZELENOV, B. A., ROTOV, V. I., KUZNETSOV, V. S., MERKER, E. A., MYZNIKOV, K. P., PUCHUCIN, V. A., PRILEPIN, A. A., SELEZNEV, V. S., SEREBRYAKOV, B. A., KHODYREV, Yu. S., and CHEPEGIN, V. N.

"Proton Beam With an Impulse of Up to 70 Gev/s Elastically Dispersed Inside a Target"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 42, No 7, 1972, pp 1437-1445

Abstract: This paper discusses the operation of a channel built into the French liquid-hydrogen Mirabelle chamber for the accelerator of the Institute of High-Energy Physics (IFVE). The function of the channel is to form pure beams of pi and k mesons, and antiprotons, in a broad range of impulse magnitudes under the action of a high-frequency separator. The secondary particles are generated on the inside of a target placed in the path of a proton beam diverted from the accelerator with an energy of 70 Gev. By using a fast system for aiming the proton beam at the target, together with a kicker magnet in the channel, the required number of particles passing through the chamber can be provided. The optical system of the channel is described with the

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USSR

GALYAYEV, N. A., et al., Zhurnal Tekhnicheskoy Fiziki, Vol 42, No 7, 1972,
pp 1437-1445

aid of diagrams of two possible variants; the beam aiming system and the particle dosage for the bubble chamber are also explained. The authors thank R. M. Sulyayev, P. F. Yermolov, A. M. Moiseyev, M. I. Solov'yev, I. A. Danil'chenko, Ye. A. Parshin, V. M. Kolesnik, A. N. Aloyev, V. D. Rudko, and V. N. Gorshkov for their assistance.

2/2

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UDC 621.385.623.4

USSR

ALFEROV, V.N., VLADIMIRTSEV, M.B., VISHNEVSKAYA, A.H., KOTOV, V.I., PRCSIN, E.V.,
SHCHELKUNOV, G.P., YAMPOL'SKIY, I.R.

"Concerning Phase Stability Of Power Klystron"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology.
Scientific-Technical Collection. Microwave Electronics), 1970, Issue 11, pp 136-139
(from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A171)

Translation: Data are presented characteristic of the dependence of the phase of the output signal on the magnitude of the anode voltage, the exciting power, the focusing regime, the filament voltage, and the temperature of the cooling water. The apparatus for phase measurements is described. The experiments were conducted on Type K1U-12AM klystrons. 2 ref. Summary.

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USSR

UDC 621.384.634

ALEKSANDROV, I. A., FRACHEV, M. I., GUBRIYENKO, K. I., YAKIMENKO,
YE. V., KOTOV, V. I., NEKRASOV, A. N., PRILEPIN, A. A., PLEKHIN,
V. A., RYKOV, R. A., SAMOYLOV, A. V., SELEZNEV, V. S.,
SEREDTSKOV, B. A., KHANAMIRYAN, A. YE., and KHODYREV, YU. S.

"Negative Particle Channel With Momentum up to 60 Gigaelectron
Volts/Second"

Moscow, Atomnaya Energiya, Vol 29, No 1, Jul 70, pp 29-34

Abstract: This article contains a description of a channel for transporting negative particles generated in an internal accelerator target with momentum up to 60 Eifaelectron volts/second and an accelerated proton energy of 70 gigaelectron volts. The channel is designed so that for an accelerated proton energy of 70 gigaelectron volts it can be adjusted to momentum in the range of 40-60 gigaelectron volts/second. On reducing the energy of the accelerated protons, the channel can be adjusted to lower momentum. The lower limit corresponds to an accelerated proton energy of 20 gigaelectron volts and is equal to 11.4 gigaelectron volts/second.

The optical system of the channel and its characteristics

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USSR

ALEKSANDROV, I. A., et al., Atomnaya Energiya, Vol. 29, No. 1, Jul 70, pp 29-34

are presented. The limiting solid capture angle of the secondary particles by the channel is 32 microsteradians. The best resolution with respect to momentum is 0.3 percent without decreasing the capture angle. The channel was investigated primarily using a secondary beam with a momentum of $p = 50$ giga-electron volts/second. The procedure for adjusting the channel and the calculated data are described. The differences between the calculated operating conditions of the elements and the conditions after adjustment together do not exceed the errors of the fringing field of the accelerator, the magnetization curve, and the curve for calibrating the bypasses of the magnet. On the whole, the beam parameters agree well with the calculated data.

A detailed diagram of the channel layout is presented, and graphs are presented for the radial position of the targets and the production angle as functions of the momentum of the secondary particles, the optical system of the channel and path of the beams in the horizontal and vertical planes, the momentum

2/3

USSR

ALEKSANDROV, I. A., et al., *Atomnaya Energiya*, Vol 29, No 1,
Jul 70, pp 29-34

resolution of the channel, the beam profile with momentum of 50 gigaelectron volts/second in the parallel section and slit width of the aperture collimators of ± 20 mm and the pulse collimator ± 6 mm, the beam profile with momentum of 50 gigaelectron volts/second in the final representation on including the lens doublet, and the beam profile with momentum of 50 gigaelectron volts/second in the final representation on including a lens triplet.

3/3

1/2 027 UNCLASSIFIED PROCESSING DATE--04DEC70
 TITLE--DEPOSITION OF THIN NICKEL, IRON FILMS DURING UNSTEADY STATE
 ELECTRODE REACTIONS -U-
 AUTHOR--(03)-KHAMAYEV, V.A., KRIVTSOV, A.K., KOTOV, V.L.
 COUNTRY OF INFO--USSR
 SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(2), 240-4
 DATE PUBLISHED-----70
 SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
 TOPIC TAGS--NICKEL ALLOY, IRON ALLOY, METAL FILM, ELECTRODEPOSITION,
 ELECTROLYTE
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRA--3005/0846 STEP NO--UR/0153/70/013/002/0240/0244
 CIRC ACCESSION NO--AT0132936
 UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0132936

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A THIN NI-Fe ALLOY CONTG. 20-35 AT. PERCENT FE IS DEPOSITED FROM ELECTROLYTES CONTG. EITHER 2.5M NISO SUB4, IN NA SUB2 SO SUB4, 0.4M H SUB3 BO SUB3, IN HCL, AND 0.07M FE PRIME2 POSITIVE, OR 2N NICL SUB2, 0.4M H SUB3 BO SUB3, AND 0.1M FE PRIME2 POSITIVE AT 20DEGREES AND PH 2.0-2.5. ASCORBIC ACID, 0.7 G-L., IS ADDED TO OXIDIZE FE PRIME2 POSITIVE TO FE PRIME3 POSITIVE. USE OF A PULSED CURRENT OF PROPER WAVE FORM RESULTS IN INCREASING THE FE CONCN. IN THE ALLOY. FOR THE SAME C.O. IN THE RANGE 3-20 A-DM PRIME2, THE PERCENT FE IS A FEW PERCENT HIGHER WITH THE SO SUB4 PRIME2 NEGATIVE THAN WITH THE CL PRIME NEGATIVE ELECTROLYTE. AT 45DEGREES, THE FE CONTENT OF THE DEPOSIT IS LOWER THAN AT 20DEGREES. FOR THIN DEPOSITS OF ALLOY, THE VELOCITY OF DISCHARGE OF FE, NI, AND H IONS IS RELATIVE TO THE NATURE OF THE SUPPORTING MATERIAL. FACILITY: IVANOV.

KHIM-TEKHNOL. INST., IVANOVQ, USSR.

UNCLASSIFIED

UDC 621.382.3

USSR

GODOV, A.N., GORYUNOV, N.N., ITKIN, B.YA., KOTOV, V.N.

"Evaluation Of The Quality Of Transistors With Respect To Transient Thermal Responses"

Elektron. tekhnika. Nauchno-tekhn. sb. Upr. kachestvom i standartiz. (Electronic Technology. Scientific-Technical Collection. Quality Control And Standardization), 1970, Issue 3, pp 22-28 (from RZh--Elektronika i yeye primeneniya, No 4, April 1971, Abstract No 4B595)

Translation: An account is given of a new method for evaluation of the quality of transistors with respect to transient thermal responses. A unit for observation of these responses is described. The solution of an equation for thermal conductivity is presented, which makes it possible to analyze thoroughly transient thermal responses obtained experimentally. Summary.

1/1

UDC 62:001.57

USSR

VASIL'YEV, V. N., DRATSKIY, Yu. M., KOTOV, V. P., and KUKUSHEIN,
Yu. A., Engineers

"Modeling an Automated System of Industrial Plant Control"

Moscow, Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 6, 1972,
pp 34-36

Abstract: This article is devoted to a description of the UMFA, a device for modeling the functions of an automatic factory control system. The purpose of the device is to prepare and acquaint the management personnel of factories with the basic functions and possibilities of automatic plant control with the idea of eventually introducing such control into the plant. It is also meant as a teaching device for junior and senior students of automated production control and to popularize new methods of factory control using economic-mathematical methods and computer techniques. A diagram of the device's external view is given as well as an operational block diagram. Some of its electronic circuits are also reproduced in schematic form. It uses magnetic tape for two-track recording: first, for a dictated text to accompany pictures for demonstration purposes; second, for control signals. Other details of the construction and operation of the device are given.

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USSR

UDC: 621.374.4

KOTOV, V. S., Active Member of the Scientific and Technical Society of Radio Engineering, Electronics and Communications

"Frequency Synthesizers Based on the Addition of Pulse Trains"

Moscow, Radiotekhnika, Vol. 26, No 5, May 71, pp 64-68

Abstract: The author discusses the principles of using pulse train addition as a basis for designing comparatively simple pulse synthesizers with uniform frequency net, high stability and simple adjustment of the frequency of oscillations formed from the signal of a single master oscillator with fixed frequency. The design of the synthesizer permits shaping sinusoidal signals from square pulses by means of comparatively simple band filters or low-frequency filters. The circuit consists essentially of a number of pairs of dividers and commutators, each commutator-divider pair representing one division stage. It is pointed out that synthesizers based on the proposed principle should be made for the low and middle frequencies since this ensures low parasitic phase modulation of the output signal in the usable range of reference frequencies. Conventional methods of shifting the frequency net can be used to obtain other frequency ranges. The proposed circuit is especially adaptable to discrete logic elements for microminiaturization.

1/1

- 114 -

Veterinary Medicine

USSR

UDC 636.4:636.089

KOTOV, V. T., ShAKhOV, A. G., and LESNYKh, V. I., Voronezh Agricultural Institute imeni K. D. Glinka and All-Union Institute of Noninfectious Diseases of Farm Animals

"Colostrum Immunity and Its Role in Combined Prophylactic Vaccination of Swine Against Erysipelas, Aujeszky's Disease, and Leptospirosis"

Moscow, Doklady Vsesoyuznoy Ordena Lenina Akad.Sel'skokhoz. Nauk imeni V. I. Lenin, No 7, 1973, pp 23-25

Abstract: Pregnant sows were vaccinated 1 to 1 1/2 months before farrowing against Aujeszky's disease, erysipelas, and leptospirosis; suckling pigs were vaccinated against Aujeszky's disease and leptospirosis; weanling pigs were vaccinated at age 2 1/2 months against erysipelas and Aujeszky's disease; gilts age 4 and 7 months were vaccinated against erysipelas. More than a million animals received the polyvalent vaccines from 1968 to 1971 and the resulting immunity was as strong as that produced by monovalent vaccines. They had no adverse effects on the course of pregnancy and stimulated the formation of antibodies against all the antigens. The antibody titers in the colostrum of the pregnant sows was as high as or higher than in serum. Antibodies against all the antigens were also found in 20- to 30-day-old suckling pigs.

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KOTOV

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TECHNICAL TRANSLATION

15

ADP / ENCL. 23-2015-72
27 Nov 72

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION
PROCEEDINGS OF THE FIRST ALL-URSSIAN CONFERENCE, EREV,
SEPTEMBER 1964

FOREIGN TITLE: ПРОБЛЕМЫ ПЕРЕДАЧИ ИНФОРМАЦИИ ЛАЗЕРНЫМ ИЗЛУЧЕНИЕМ

AUTHOR: I. A. DERJAGIN, ET AL.

SOURCE: NEW ORDER OF LEVIN STATE UNIVERSITY
IMENI I.G. SCHECHENKO

Translated for FSTC by ACS1

NOTICE

The contents of this publication have been translated as presented in the original text. No attempt has been made to verify the accuracy of any statement contained herein. This translation is published with a minimum of copy editing and graphics preparation in order to expedite the dissemination of information.

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- First Page -

Acc. Nr.: AP0046763

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Ref. Code: 1180125

4

USSR

UDC 621.791.756:669.15-194

KAKHOVSKIY, N. I., FARTUSHNIYY, V. G., DEM'YANENKO, G. P., ZAKHAROV, I. S.,
LIPODAYEV, V. N., KAKHOVSKIY, YU. N., BRUSENTOVA, V. M., KOTOV, V. V.

"Welding of Chrome-nickel-molybdenum Single-Phase Austenitic Steel"

Kiev, Avtomaticheskaya Svarka (Automatic Welding), No 1, 1970, pp 39-43
(from Avtomaticheskaya Svarka, No 1, 1970, p 80)

Translation: This article contains a study of the effect of manganese and nitrogen on crack resistance of purely austenitic welds. Chrome-nickel-manganese-molybdenum wire with nitrogen EP690 and ANV-17 electrodes for welding OKh17N16M2T, OOKh17N16M3B and OOKh16N15M3 steels have been developed. These developments insure uniform strength, uniform corrosion resistance of the joints made of these steels and sufficiently high plasticity and viscosity of the weld metal. There are 4 tables, 1 illustration and a bibliography with 15 entries..

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Reel/Frame
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USSR

YERSHOV, A. P., KOTOV, V. Ye., LETICHEVSKIY, A. A., PODLOVCHENKO, R. I.,
POTTOSIN, I. V., TRAKITENBROT, V. A., FUKSMAN, A. L. and TSEYTIM, G. S.

"Theoretical Programming in the USSR (All-Union Symposium on Programming
Theory, Tsvetodubovo, 1-10 March 1972)"

Sistemnoye i Teor. Programirovaniye [Systems and Theoretical Programming --
Collection of Works], Novosibirsk, 1972, pp 9-89 (Translated from Referativnyy
Zhurnal Kibernetika, No 9, 1973, Abstract No 9V642).

Translation: This article is a collective report of the chairmen of the
thematic sections of an All-Union symposium on programming theory held
1-10 March 1972 near Leningrad. Although only factual material discussed
at the symposium is presented, this publication rather objectively charac-
terizes the status of theoretical programming in the USSR. The work of the
symposium consisted of a series of thematic sessions and discussion. The
following sessions were in operation (each followed by the name of the
chairman): 1. Equivalence and Conversion of Program Plans (A. A. Letichev-
skiy); 2. Yanov Plans and Their Generalization (R. I. Podlovchenko); 3.
The Grammars of Programming Languages (A. L. Fuksman); 4. Base and Semantic

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USSR

Yershov, A. P., Kotov, V. Ye., Letichevskiy, A. A., Podlovchenko, R. I., Pottosin, I. V., Trakhtenbrot, V. A., Fuksman, A. L., and Tseytin, G. S., *Sistemnoye i Teor. Programirovaniye*, Novosibirsk, 1972, pp 9-89.

Languages (A. P. Yershov); 5. Parallel Programming (V. Ye. Kotov); 6. Optimization of Programs (I. V. Pottosin); 7. Complexity of Algorithms and Algorithmic Power (G. S. Tseytin).

The session was opened by a speech of introduction by the chairman, followed by 20-30 minute reports by the participants and, generally, finishing up with animated discussion. The publication is a combination of the reviews of each of the thematic sessions of the symposium, prepared by the chairman of the sessions on the basis of author's abstracts of the reports.

In addition to this, a discussion on the subject of "Programming Theory and Other Sections of Mathematics," chaired by B. A. Trakhtenbrot, is described, as well as the results of statistical processing of questionnaires passed out to the participants of the symposium, reflecting their views on the role of programming theory in general and the significance of individual sections of this theory.

M. Gorbunov-Posadov

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USSR

KOTOV, V. Ye. [Editor]

"Systems and Theoretical Programming. Collection of Works"

Sistemnoye i Teoreticheskoye Programirovaniye. Sb. Trudov. [English Version Above], Novosibirsk, 1972, 333 pages (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V644K).

Translation: This collection is the first thematic collection on problems of systems and theoretical programming published by the computer center of the Siberian Division, Academy of Sciences, USSR. It is planned that collections under this title will be published each year and will contain original articles discussing various aspects of contemporary systems and theoretical programming: methods of construction of software systems (particularly translators and operational systems), the theory of languages and programming languages, the theory of programming systems, and the theory of parallel programming.

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USSR

KUTOV, V. Ye.

"Practical Realization of Asynchronous Parallel Computation"

Sistemnoye i Teor. Programirovaniye [Systems and Theoretical Programming -- Collection of Works], Novosibirsk, 1972, pp 110-125 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V705).

Translation: A method of organization of parallel computations is analyzed, based on a formal model, using which a number of theoretical results have been produced concerning the properties of parallel calculations and automatic construction of parallel programs.

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1/2 025

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--REACTIVE PROPERTIES OF P.N.N PRIME POSITIVE STRUCTURES WITH
ULTRALONG BASES AT HIGH DIRECT CURRENT DENSITIES --U--

AUTHOR--(03)--ARGNOV, D.A., KOTOV, YA.P., KOTOV, YE.P.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK UZV. SSR, SER. FIZ.-MAT. NAUK 1970, 14(2), 43-6

DATE PUBLISHED--70

SUBJECT AREAS--PHYSICS, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--FREQUENCY CHARACTERISTIC, ELECTRIC FIELD, CARRIER DENSITY,
HOLE MOBILITY, FREE PATH, SEMICONDUCTOR JUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1007

STEP NO--UR/0166/70/014/002/0043/0045

CIRC ACCESSION NO--AP0124666

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124666

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOME FREQUENCY PROPERTIES OF P,N,N PRIME POSITIVE STRUCTURE ARE ANALYZED BY TAKING INTO ACCOUNT THE EFFECT OF THE ELEC. FIELD IN A SUPERLONG BASE (W-L SUBP GREATER THAN 10) ON THE DISTRIBUTION OF CURRENT CARRIERS. THE INSULATOR CASE IS STUDIED, I.E. THE ELEC. FIELD IN THE BASE CHANGES USBTANTIALLY AND HAS A CLEARLY EXPRESSED MAX. LOCATED APPROX. IN THE MIDDLE OF THE BASE. THE EFFECT OF SOME PARAMETERS OF THE STRUCTURE ON Q FACTOR IS CONSIDERED, ESP. OF THE "LENGTH" OF THE BASE W-L SUBP (L SUBP IS THE MINORITY CARRIER DIFFUSION LENGTH). FACILITY: FIZ.-TEKH. INST. IM. STARUDUBTSEVA, TASHKENT, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--30DCT70
TITLE--REACTIVE PROPERTIES OF P,N,N PRIME POSITIVE STRUCTURES WITH
ULTRALONG BASES AT HIGH DIRECT CURRENT DENSITIES -U-
AUTHOR-(03)-ARONOV, D.A., KOTOV, YA.P., KOTOV, YE.P.

CCUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK UZV. SSR, SER. FIZ.-MAT. NAUK 1970, 14(2), 43-6

DATE PUBLISHED--70

SUBJECT AREAS--PHYSICS, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--FREQUENCY CHARACTERISTIC, ELECTRIC FIELD, CARRIER DENSITY,
HOLE MOBILITY, FREE PATH, SEMICONDUCTOR JUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--2000/1007

STEP NO--UR/0166/70/014/002/0043/0046

CIRC ACCESSION NO--AP0124666

UNCLASSIFIED

2/2 025

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PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124666

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOME FREQUENCY PROPERTIES OF P,N,N PRIME POSITIVE STRUCTURE ARE ANALYZED BY TAKING INTO ACCOUNT THE EFFECT OF THE ELEC. FIELD IN A SUPERLONG BASE (W-L SUBP GREATER THAN 10) ON THE DISTRIBUTION OF CURRENT CARRIERS. THE INSULATOR CASE IS STUDIED, I.E. THE ELEC. FIELD IN THE BASE CHANGES USBSTANTIALY AND HAS A CLEARLY EXPRESSED MAX. LOCATED APPROX. IN THE MIDDLE OF THE BASE. THE EFFECT OF SOME PARAMETERS OF THE STRUCTURE ON Q FACTOR IS CONSIDERED, ESP. OF THE "LENGTH" OF THE BASE W-L SUBP (L SUBP IS THE MINORITY CARRIER DIFFUSION LENGTH). FACILITY: FIZ.-TEKH. INST. IM. STARUDUBTSEVA, TASHKENT, USSR.

UNCLASSIFIED

USSR

K
UDC 621.374.44

SOBOLEV, A. I., KOTOV, Yu. A., MODESTOV, L. A.

"Frequency Multipliers with Superhigh Multiplicity"

V sb. Poluprovodn. pribory i ikh primeneniye (Semiconductor Devices and their Application--collection of works), Vyp. 23, Moscow, "Sov. radio", 1970, pp. 238-232 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D28)

Translation: A method is given for calculating the output power of frequency multipliers with superhigh multiplicity coefficient in the decimeter wavelength range. Descriptions are given of wide-band and wide-range tunable multipliers based on parametric diodes, together with the results of an experimental investigation of these multipliers. The use of diodes which operate under conditions of partial blocking of the PN junction, and utilization of the phenomenon of charge accumulation with rational selection of the multiplier state makes it possible to create multipliers which are simple in design with output power of $\sim 10^{-6}$ W. Authors' abstract.

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USSR

INDEX 537.591

BUGAYEV, E. V., KOTOV, Yu. D., and ROZENTAL', I. L.

"Cosmic Muons and the Neutrino"

Cosmicheskiye myuony i neytrino (cf. English above), Moscow, Atomizdat, 1970, 320 pp, ill., 1 r., 91 k. (from RZh-Fizika, No 4, Apr 71, Abstract No 4V446K)

Translation: Contents: Part I. Muons. Chapter 1. Electromagnetic Interactions of Muons. Chapter 2. Characteristics of Muon Flux at Sea Level. Chapter 3. Passage of Muons Through Matter. Chapter 4. Formation of High-Energy Muons. Chapter 5. Muons in Broad Atmospheric Showers. Chapter 6. Certain Conclusions. Part II. The Neutrino. Chapter 7. Introduction and Theoretical Aspects of Neutrino Physics. Chapter 8. Neutrino Experiments on Accelerators. Chapter 9. Search for the Neutrino From the Sun. Chapter 10. Neutrino Astrophysics. Chapter 11. Experiments With Neutrinos From Cosmic Rays.

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USSR

UDC: 621.165-226-758.3

KIRILLOV, I. I., FADDEYEV, I. P., AMELYUSHKIN, V. N., ~~KOTOV, Yu. V.~~, VOLCHKOV, V. I., RADIK, S. V., Leningrad "Order of Lenin" Polytechnical Institute imeni M. I. Kalinin

"A Moisture Collector"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzyy, Tovarnyye Znaki, No 10, Apr 72, Author's Certificate No 332244, Division P, filed 11 Jun 70, published 14 Mar 72, p 134

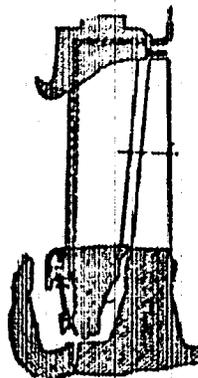
Translation: This Author's Certificate introduces: 1. A moisture collector designed chiefly for a wet vapor turbine. The device contains collector chambers with drain channels installed in the body of a diaphragm over the hub of the working wheel. As a distinguishing feature of the patent, the efficiency of moisture extraction is increased by making the chambers in the form of annular grooves one over the other. The upper groove is connected by slits to the flow part on the vapor injection side, and the hub is tapered with increasing diameter in the path of the vapor with an annular projection at maximum diameter to throw the

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USSR

KERILLOV, I. I. et al., USSR Author's Certificate No 332244

moisture into the lower chamber. 2. A modification of this moisture collector distinguished by the fact that moisture-catching troughs are provided in the lower chamber.



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Devices

USSR -

UDC 681.327

DOLGOVESOV, B. S., KOVALEV, A. M., KOTOV, V. N., LUBKOV, A. A., NESTERIKHIN, YU. YE., OBERTYSHEV, K. F., TOKAREV, A. S., YAKIMOVICH, A. P., Novosibirsk

"Problems of Constructing Devices for Operative Interaction of Man with a Computer"

Novosibirsk, Avtometriya, No 2, 1972, pp 35-39

Abstract: Two types of devices corresponding to the basic requirements for systems for operative interaction of man with a computer -- a computer operating in the time sharing mode and peripheral devices numbering from 1 to 1,000 -- have been developed at the Institute of Automation and Electrometry of the Siberian Department of the USSR Academy of Sciences. One of these devices -- the Ekran -- was discussed previously [B. S. Dolgovesov, et al, Avtometriya, No 4, 1971; B. S. Dolgovesov, et al., Avtometriya, No 4, 1971; A. M. Kovalev, et al., Avtometriya, No 4, 1971]. The other -- the Simbol -- is investigated in the present article. A block diagram of the Simbol alphanumeric system is presented, and the algorithms for the various operating modes of the system are discussed. The algorithms of all nodes of the system are executed by means of a microprogram control circuit. An effort was made to achieve the fastest possible system for which the principal cycle of the microprogrammed control unit was reduced to a minimum. Where possible the single pulse instructions

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USSR

DOLGOVESOV, B. S., et al., *Avtometriya*, No 2, 1972, pp 35-39

are processed simultaneously; a very high cycle frequency is selected -- 2.5 millihertz. The operating logic of the device can be changed. One of the basic parameters of the operative interaction device along with broad functional possibilities is the information capacity. Thus, much attention was given to the high speed of individual units, in particular, the speed of the symbol generator. The programmed segment method was used as the basis for constructing the symbol generator which provides 1,024 symbols with an image regeneration frequency of 50 hertz. An example image photograph from the Simbol screen is shown.

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1/2 013 UNCLASSIFIED PROCESSING DATE--07OCT70
TITLE--LIQUID PHASE EQUILIBRIUMS IN N,HEXANE, PYRIDINE
ACETATE, P,CRESOL(O,CRESOL) SYSTEMS -U-
AUTHOR--(OZ)-KRUPATKIN, I.L., KOTOVA, G.I. *K*
COUNTRY OF INFO--USSR
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2), 257-61
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--PHASE EQUILIBRIUM, HEXANE, PYRIDINE, ACETATE, PHASE DIAGRAM,
ISOMER, CRESOL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PRGX REEL/FRAME--1993/0203 STEP NO--UR/0079/70/040/002/0257/0201
CIRC ACCESSION NO--APO113142
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0113142

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHASE DIAGRAMS WERE PRESENTED FOR THE TITLE SYSTEM BOTH GRAPHICALLY AND TABULARLY AT 25 AND 35 DEGREES. IN THE LIQ. PHASES OF THE BINARY SYSTEMS COMPLEXES OF 1:2 AND 1:1 RATIOS OF PYRIDINE ACETATE AND THE CRESOL COMPONENT WERE DETECTED. THE INTERACTION OF THIS SALT WITH THE CRESOL IS SOMEWHAT GREATER FOR THE P,CRESOL THAN FOR THE M, ISOMER, AND IS VERY MUCH GREATER FOR O,CRESOL.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--CRITICAL SOLUBILITY PHENOMENA IN A PYRIDINE-PYRIDINE
ACETATE,N,HEXANE,O,CRESOL QUATERNARY SYSTEM -U-
AUTHOR-(02)-KUKPATKIN, I.L., KOTOVA, G.I. **K**
COUNTRY OF INFO--USSR
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 521-4
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--PYRIDINE, ACETATE, HEXANE, CRESOL, PHASE DIAGRAM, COMPLEX
COMPOUND, SOLUBILITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1131 STEP NO--UR/0079770/040/003/0521/0524
CIRC ACCESSION NO--AP0128558

2/2 011 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0124558
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHASE DIAGRAMS ARE PRESENTED FOR THE TITLE SYSTEM AND FOR THE COMPONENT SUBSYSTEMS AT 150 DEGREES. THE FOLLOWING COMPLEXES WERE DETECTED: PYRIDINE ACETATE (2, 1, O, CRESOL, AND 1:1 COMPN.); A NARROW REGION OF LIQ. PHASE SEPN. WAS FOUND AT THE BOUNDARY OF THE BINARY SYSTEM OF PYRIDINE ACETATE/HEXANE AND THE ISOTHERMAL SOLN. CRIT. POINT WAS AT PYRIDINE 15PERCENT, PYRIDINE ACETATE 23PERCENT, AND HEXANE 62PERCENT. THE QUATERNARY SYSTEM HAS A 4 COMPONENT CRIT. POINT AND A SADDLE POINT AT PYRIDINE 2PERCENT, PYRIDINE ACETATE 17PERCENT, HEXANE 63PERCENT, AND O, CRESOL 18PERCENT. THE COMPLEX FORMATION BETWEEN PYRIDINE AND O, CRESOL IS NOT REFLECTED ON THE CRIT. SOLN. SURFACE OF THE QUATERNARY SYSTEM. FACILITY:
KALININ. POLITEKH. INST., KALININ, USSR.

UNCLASSIFIED

1/2 033

UNCLASSIFIED

PROCESSING DATE--09OCT70

TITLE--AUTOMATIC MAINTENANCE AND CONTROL OF DEPTH OF ANESTHESIA -U-

AUTHOR--(05)-ZHOROV, I.S., SMIRNOV, V.G., MIKHELSON, V.A., KOTOVA, G.P., NIKITINA, L.G.

COUNTRY OF INFO--USSR

SOURCE--EKSPERIMENTAL'NAYA KHIRURGIYA I ANESTEZIOLOGIYA, 1970, NR 2, PP 57-61

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANESTHESIA, MEDICAL APPARATUS, ELECTROENCEPHALOGRAPHY, SURGERY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0637

STEP NO--UR/0481/10/000/002/0057/0061

CIRC ACCESSION NO--AP0108848

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0108848

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS DESCRIBE AN APPARATUS WHICH REGULATES AUTOMATICALLY THE AETHER DOSAGE ACCORDING TO ELECTROENCEPHALOGRAPHIC DATA. OVER 50 IMPORTANT OPERATIONS HAVE BEEN CARRIED OUT WITH THIS METHOD. THIS APPARATUS IS A PROTOTYPE OF THE APPARTUS FOR AUTOMATIC CONTROL OF ALL THE MODERN METHODS OF ANESTHESIA. THIS WILL REQUIRE FURTHER INVESTIGATION AND STUDY. FACILITY: KAFEDRA FAKUL'TETSKOY KHIRURGII 2-GO LECHEBNOGO FAKUL'TETA I MOSKOVSKOGO MEDITSINSKOGO INSTITUTA IM. I. M. SECHENOVA AND MINIP MINISTERSTVA RADIOPRMYSHLENNOSTI SSSR.

UNCLASSIFIED

Graphite

USSR

UDC 621.3.035.2

GOLOVINA, YE. S., SHIPKOV, N. M., KOTOVA, L. I., PERKOVA, G. A.,
DEMIN, A. V., and RAKCHEYEVA, V. I.

"Reactivity of Graphite With Titanium and Silicon Additives"

Tsvetnyye Metally, No 3, Mar 71, pp 59-62

Abstract: The reactivity of graphite with added titanium (0-10%) and silicon (3 wt %) was studied in an active gas medium at high temperatures (2500 and 3000°K). It was established that the introduction of silicon alone, facilitating the technological process, only slightly increases the resistance of graphite in the active medium. The combined introduction of titanium and silicon significantly reduced the reactivity of the graphite.

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USSR

UDC 620.171-41

PANSHIN, B. I., KOTOVA, L. P., and KOLCHEV, O. V.

"Method for Determining the Mechanical Properties of Sheet Materials With a Shear in the Sheet Plane"

Moscow, Zavodskaya Laboratoriya, Vol 36, No 11, 1970, pp 1371-1374

Abstract: A brief review is presented of methods for determining the rigidity and strength characteristics of isotropic and anisotropic materials in the presence of shear in the sheet plane. The shortcomings of indirect methods for determining the shear characteristics of anisotropic materials are noted. Refined formulas for calculating the modulus of transverse elasticity G and the shear stress τ_p from data from tensile and compression tests are derived. A systematic error inherent to tests on buckling of sheet materials in conventional hinge frames is shown and evaluated in tests of ST-1 glass-reinforced textolite. A new stand for pure shear testing is described and presented schematically. It ensures a uniform stress and strain distribution and makes it possible to determine G and τ by refined

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USSR

PANSHIN, B. I., et al., Zavodskaya Laboratoriya, Vol 36, No 11,
1970, pp 1371-1374

formulas without corrections. Comparative results obtained
using the conventional and new test stands are presented in tables.

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1/2 018 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--USE OF THE FADDEEV EQUATIONS TO CALCULATE ELECTRON SCATTERING
LENGTH FOR HYDROGEN -U-
AUTHOR-(02)-TERENTYEV, M.V., KOTOVA, L.P. 
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(6), 1312-14
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS
TOPIC TAGS--ELECTRON SCATTERING, HYDROGEN, CALCULATION

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1992/2044 STEP NO--UR/0020/70/190/006/1312/1314
CIRC ACCESSION NO--AT0112999
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0112999

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FADDEEV EQUATION (1960) USED FOR THE CALC. OF ELECTRON SCATTERING OF H SHOWED THAT TRIPLET AND SINGLET SCATTERING ARE DIFFERENT. THE PHYS. CAUSE OF THIS DIFFERENCE WAS ASCRIBED TO THE LOWER 1ST APPROXN. IN A TRIPLET. THIS DOES NOT CONTAIN THE ELECTRON ELECTRON AMPLITUDE OF SCATTERING.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--LIVER FUNCTION AND ELECTROLYTIC METABOLISM, POTASSIUM AND SODIUM,
IN PATIENTS WITH DIABETES MELLITUS -U-
AUTHOR--KOTOVA, N.F.
COUNTRY OF INFO--USSR *K*
SOURCE--VRACHEBNOYE DELO, 1970, NR 4, PP 130-132
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--DIABETES MELLITUS, LIVER FUNCTION, PROTEIN SYNTHESIS,
PYRUVATE, DIAGNOSTIC MEDICINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3001/1596 STEP NO--UR/0475/70/000/004/0130/0132
CIRC ACCESSION NO--AP0127087
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127087

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF A STUDY OF 59 PATIENTS WITH DIABETES MELLITUS INDICATE THAT THE PROTEIN FORMING FUNCTION OF THE LIVER IN THESE PATIENTS WAS ABNORMAL MANIFESTED IN HYPERGLOBULINEMIA, HYPOALBUMINEMIA, POSITIVE THYMOL TEST. DISORDERS OF THE CARBOHYDRATE FUNCTION OF THE LIVER WAS MANIFESTED BY INCREASED CONTENTS OF PYRUVIC ACID IN THE BLOOD SERUM. DISORDERS OF THE FUNCTIONAL STATE OF THE LIVER CAUSE AN ABNORMAL BALANCE OF POTASSIUM AND SODIUM (DETERMINED BY FLAME PHOTOMETRY) IN SEVERAL PATIENTS. FACILITY: KHAR'KOVSKOGO MEDITSINSKOGO INSTITUTA.

USSR

UDC 632.4:582.2(1:635.656

~~KOTOVA, N. V.~~, All-Union Institute of Plant Protection, Laboratory of
Phytopathology, Leningrad

"Biology of *Aphanomyces euteiches* Drechs., the Pathogen of Pea Root Rot"

Leningrad, Mikologiya i Fitopatologiya, Vol 5, No 2, 1971, pp 155-161

Abstract: *A. euteiches* does a lot of damage to the pea crop in a number of regions of the nonchernozem and north-western regions of the USSR. The disease was first noted in the USA in 1925. Later it spread to England, most of western Europe, Australia, and other countries. The fungus has a development cycle similar to that of saprogenic fungi. Sexual and asexual spore bearing both occur, depending on weather conditions. The oospores are the fundamental sources of infection. The disease is enhanced by high environmental humidity and moisture of the soil in the early spring and in the summer, when oospores are formed in the plant roots. Nitrogen and potassium salts inhibit the emergence of asexual and sexual spore-bearing states in vitro. It was concluded that increasing the nitrogen and potassium salt concentrations in soil solutions will reduce root rot of peas. The fungus can also infect other bean plants, as well as grains.

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1/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--POLAROGRAPHIC STUDY OF THE ENERGY METABOLISM OF DOG LUNG
MITOCHONRIA IN THE COLO -U-
AUTHOR-(04)-YELISEYEVA, S.V., KOTOVA, YE.N., RABINOVICH, YU.YA.,
CHECHULIN, A.S.
CCOUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(3), 705-7
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--POLAROGRAPHY, DOG, LUNG, MITOCHONORIUM, METABOLISM,
RESPIRATION, PHOSPHORYLATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/1663 STEP NO--UR/0020/70/191/003/0705/0707
CIRC ACCESSION NO--AT0133568
UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE---20NOV70

CIRC ACCESSION NO--AT0133568

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FRESHLY ISOLATED DOG LUNG MITOCHONDRIA CONSUMED O₂ FOR UP TO 3 DAYS UNDER ALL BASIC METABOLIC CONDITIONS WITH RESPIRATORY CONTROLS (LARDY-WELLMAN) OF THE ORDER OF 2.6. THE ADP-G PHOSPHORYLATION COEFF. FOR SUCCINATE WAS ABOUT 2.7, CONSIDERABLY HIGHER THAN THE P-O PHOSPHORYLATION COEFF. CITED IN EXISTING LITERATURE FOR LUNG HOMOGENATES AND MITOCHONDRIA. PRESERVATION OF THE LUNG AT 2DEGREES FOR 1 DAY DID NOT MATERIALLY AFFECT MITOCHONDRIAL BEHAVIOR, BUT IN 2 DAYS DISTURBED METABOLISM APPEARED IN THE CHAIN OF ENERGY ACCUMULATION, INDICATED BY DOUBLING OF THE PHOSPHORYLATION TIME, ALTHOUGH THE CAPABILITY FOR PHOSPHORYLATION OF ADDED ADP WAS MAINTAINED. IN 3 DAYS MATERIAL DAMAGE TO PHOSPHORYLATION AND OXIDN. WAS EVIDENT. SECHENOVA, MOSCOW, USSR. FACILITY: MOSK. MED. INST. IN.

UNCLASSIFIED

USSR

UDC 547.1'118'122:621.892.009.6

GORDASH, YU. T., KHARCHENKO, L. S., RABINOVICH, I. L., BACHINSKIY, T. P., GUPALO, A. P., ZEMLYANSKIY, N. I., KOTOVICH, B. P., and MURAV'YEV, I. V., All-Union Scientific Research and Project and Design Institute of the Petroleum Conversion and Petrochemical Industry, Kiev

"Investigation of Sulfur-Containing Organophosphorus Compounds as Additives to Lubricating Oils"

Moscow, Neftekhimiya, Vol 11, No 1, Jan-Feb 71, pp 135-140

Abstract: The effectiveness of derivatives of thiophosphoric acid as additives to lubricating oil was studied. Fifteen compounds of this type including O,O-dialkyl-S-alkyl dithiophosphates, O-diethylaminoethyl-S,S-dipropyl trithiophosphate, bis(O,O-diethyldithiophosphate)-benzylidene, bis(O-methyl-O-butylthiophosphone)disulfide, O-alkyl-S,S-dialkyl trithiophosphates, and S,S,S-tetraethyl tetrathiothiophosphate were synthesized for this purpose. The formulas and characteristics of these compounds are listed in a table. The effects of addition of the 15 compounds to oil DS-11 on the thermal oxidation stability of the oil, the corrosion of Pb plates, the over-all index of wear, the critical load of seizing, and the critical load of welding were determined and compared with those of additive DF-11 (Zn butyloctyl-1/2

USSR

GORDASH, YU. T., et al., Neftekhimiya, Vol 11, No 1, Jan-Feb 71, pp 135-140

dithiophosphate). The results of the tests showed that use of trialkyl tetra-thiophosphates, bis(O,O-dialkylthiophosphone)disulfides, and O-dialkyl-aminoalkyl-S,S-dialkyl trithiophosphates as multifunctional additives to lubricating oils would be of advantage. The effects of the CCl_3 group in reducing wear and seizing of friction surfaces were confirmed by the results of tests on dithiophosphates containing an $-\text{SC}(=\text{O})\text{CCl}_3$ group. The tests with O,O-difurfuryl-S-trichloroacetyl dithiophosphate indicated that this compound would be a good all-around additive for lubricating oils.

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1/2 011
TITLE--MAJOR GOAL -U-

UNCLASSIFIED

PROCESSING DATE--23OCT71

AUTHOR--KOTOVICH, M.YE.

COUNTRY OF INFO--USSR

SOURCE--STANDARTY I KACHESTVO, 1970, NR 5, PP 71-72

DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--INDUSTRIAL PLANT, QUALITY CONTROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/1553

STEP NO--UR/0422/70/000/005/0071/0072

CIRC ACCESSION NO--AP0120332

UNCLASSIFIED

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CIRC ACCESSION NO--AP0120332

UNCLASSIFIED

PROCESSING DATE--23OCT7

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIBED IS THE PRACTICAL
INTRODUCTION OF THE SARATOV SYSTEM OF FAULTLESS MANUFACTURING OF
PRODUCTS FOR ACCEPTANCE AT FIRST PRESENTATION AT THE 25TH OF OCTOBER
MACHINE BUILDING FACTORY, PERVOMAISK, NIKOLAYEV REGION.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--17 JUL 70

TITLE--A CHANGE OF ANTIPLASMIN ACTIVITY IN PATIENTS SUFFERING FROM TUMOR
OF THE URINARY BLADDER -U-

AUTHOR--ZAVADICH, I.B., KOTGVSHCHIKOV, M.A., FEDOROVA, Z.D.

COUNTRY OF INFO--USSR

SOURCE--URCLOGIYA I NEFROLOGIYA, 1970, NR 1, PP 45-47

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MEDICAL PATIENT, TUMOR, UROLOGY, FIBRINOGEN

CENTRAL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1979/0761

STEP NO--UR/C606/70/000/001/0045/0047

GIRC ACCESSION NO--APOC47254

UNCLASSIFIED

Acc. Nr: AP0047254

Ref. Code:

PRIMARY SOURCE: Urologiya i Nefrologiya, 1970, Nr 1,
PP 45-47

**A CHANGE OF ANTIPLASMIN ACTIVITY IN PATIENTS SUFFERING FROM TUMOUR
OF THE URINARY BLADDER**

Zavadich, I.B.; Kotovshchikova, M.A.; Fedorova, Z.D.

Summary

Antiplasmin activity was studied on thromboelastograph in 32 patients suffering from tumour of the urinary bladder; the data obtained were compared with the data of fibrinolytic activity of the blood and concentration of fibrinogen. It was shown that there was a distinct shift in the direction of hypercoagulation in these patients, especially with malignant tumours. Surgical intervention and chemotherapy reduced the activity of antiplasmin. There was noted no correlation with the concentration of fibrinogen or negative correlation with the fibrinolytic activity of the blood.

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USSR

UDC 615.387.014.41

FEDOROVA, Z. D., KOTOVSHCHIKOVA, M. A., and KATSADZE, YU, L., Blood Coagulation Laboratory of the Leningrad Scientific Research Institute of Hematology and Blood Transfusion

"A Search for New Methods of Blood Preservation for Improving the Retention of Its Hemostatic Properties"

Moscow, Problemy Gematologii i Perelivaniya Krovi, Vol 16, No 8, 1971, pp 11-18

Abstract: A study was carried out of the effect of tsalol and ϵ -aminocaproic acid on the activity of plasma factors in the coagulation of blood stored for 21 days. Tests demonstrated that the addition of tsalol and ϵ -aminocaproic acid to the blood promoted the retention of the full biological value of erythrocytes for a longer period and increased the coagulation properties of the blood. The higher level of antiplasmin and blocking of the activation of plasminogen apparently inhibits the proteolytic and fibrinolytic processes, thus slowing down the decrease of the activity of blood coagulation factors. Particularly important is the fact that up to the 14th day in storage the activity of proacceletin in blood with tsalol and ϵ -aminocaproic acid was approximately 50%, i.e., definitely higher than in control blood. The

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FEDOROVA, A. D., et al., Problemy Gematologii i Perelivaniya Krovi, Vol 16,
No 8, 1971, pp 11-18

results of the study indirectly confirm the fact that the preservation of plasma proteins participating in coagulation depends on the intensity of the proteolytic and fibrinolytic processes. It may be supposed that addition of tsalol and ϵ -aminocaproic acid to the preserving solution will permit retention of the hemostatic properties of preserved blood for 2 weeks.

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1/2 031 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--WELDABILITY OF FTOROPLAST-4M TETRAFLUOROETHYLENE POLYMER -U-
AUTHOR--(03)-MATSYUK, L.N., VISHNEVSKAYA, N.V., KOTDVSHCHIKOVA, O.A.
COUNTRY OF INFO--USSR
SOURCE--PLAST. MASSY 1970, [6], 74-5
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--POLYTETRAFLUOROETHYLENE, ADHESION, PLASTIC FILM, ADHESION,
WELDABILITY, CONSTRUCTION MATERIAL/(U)FTOROPLAST 4M FLUORINE PLASTIC
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0704 STEP NO--UR/0191/707/000700570974/0075
CIRC ACCESSION NO--AP0136143
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136143

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADHESION OF STYRENE-MASTIC (I) FILMS OR PANELS, MADE BY SINTERING COLLOIDAL I DEPOSITED ON A WIRE MESH, DECREASED WHEN THESE MATERIALS WERE ANNEALED IN THE AIR AT 230-40DEGREES. HEATING I AT 262-340DEGREES CAUSED A LOSS OF 0.03 WT. PERCENT, NO CHANGE IN THE MELT FLOW INDEX OR IR SPECTRA, 1-3PERCENT SHRINKAGE, AND LESS THAN OR EQUAL TO 30PERCENT LOSS IN STRENGTH. THESE CHANGES APPEAR NOT TO BE CAUSED BY DEGRADATION, BUT BY THE STRUCTURAL REORDERING OF I. THE CHANGES OF THE SURFACE-RELIEF ("SMOOTHING OUT") CAUSE A DECREASE OF THE ADHESION.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--02 OCT 70
TITLE--INFLUENCE OF VARIOUS FACTORS ON THE CRYSTALLIZATION AND DEGREE OF
DISPERSION OF A COPPER POWDER OBTAINED BY REDUCTION -U-
AUTHOR--(02)-KUTOVSKAYA, N.L., POMOSOV, A.V. **K**
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 549-53
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--COPPER POWDER, CRYSTALLIZATION, METAL REDUCTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/0283 STEP NO--UR/0080/70/043/003/0543/0553
CIRC ACCESSION NO--AP0113213
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--02/01/70

CIRC ACCESSION NO--AP0113213

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FACTORS DETG. THE STATE OF CU POWDER FORMED IN THE REFN. OF CUSO SUB4 WITH TI SUB2 (SO SUB4) SUB3 WERE INVESTIGATED BY USING POTENTIOMETRIC, SEDIMENTOMETRIC, AND MICROPHOTOGRAPHIC METHODS. THUS, THE CHANGE OF THE POTENTIAL OF A PT ELECTRODE, IMMERSED IN THE SOLN. OF THE REDUCING AGENT, TI SUB2 NEGATIVE (SO SUB4) SUB3 WHEN AN EQUIV. AMT. OF CUSO SUB4 WAS ADDED, WAS RECORDED OSCILLOGRAPHICALLY; THE CURVE REFLECTED THE KINETICS OF THE PROGRESS. THE POTENTIAL OF THE PT ELECTRODE BECAME IDENTICAL TO A CU PRIME2 POSITIVE-CU ELECTRODE (0.28-0.3 V). THE DATA AFFORDED AN ESTN. OF THE DURATION OF CRYSTAL NUCLEI FORMATION. THE INFLUENCE OF THE CONCN. OF CUSO SUB4, (0.5-12 G CU-1.), TEMP. (5-60DEGREES), AND INTENSITY OF STIRRING WERE STUDIED. HIGHER CONCN. OF CUSO SUB4 RESULTS IN INCREASED DIFFUSION RATE CAUSED BY A GREATER CONCN. GRADIENT AND CRYSTAL GROWTH OF CU OCCURS FASTER. THE DURATION OF THE REDY. PROCESS IN SOLNS. CONTG. 8-12 G CU-1. IS ONE-HALF THAT IN SOLNS. CONTG 0.5-4 G CU-1. THE TIME REQUIRED TO COVER THE PT ELECTRODE WITH CU DECREASES FROM 0.06 SEC IN SOLNS. CONTG 0.5 G CU-1. TO 0.04 SEC IN SOLNS. CONTG. 12 G CU-1. FACILITY: URAL. POLITEKH. INST. IM. KOROVA, SVERDLOVSK, USSR.

UNCLASSIFIED

Alkaloids

USSR

UDC: 547.941.9L5

MAN'KO, I. V., KOTOVSKIY, B. K., Leningrad Institute of Pharmaceutical Chemicals

"A New Alkaloid From the Plant *Symphytum Asperum* Lepech. -- Asperumin and its Structure"

Leningrad, Zhurnal Obshchey Khimii, Vol 40 (102), No 11, Nov 70, pp 2519-2520

Abstract: Alkaloids are isolated from *Symphytum asperum* Lepech., the greatest in quantity being named asperumin. Paper chromatography first revealed a single alkaloid, but thin-layer chromatography on aluminum oxide later showed that the herb contains three alkaloids in addition to asperumin -- heliosupin oxide, echinatin and an unidentified alkaloid (the last two in minute quantities). Alkali hydrolysis of a natural mixture of the alkaloids from *S. asperum* Lepech. yields the following pure compounds: aminoglycol heliotridin, angelic acid, acetone and α, β -dioxibutyric acid. However, the chemically pure form of the alkaloid contains only heliotridin and angelic acid.

1/1

KOTOUSKIY, Ye. F.

NASA TT F-730

PROBLEMS OF SPACE BIOLOGY - VOLUME 15

Functional Morphology During Extremal Actions

By Ye. F. Kotouskiy and L. L. Shubertich

Translation of "Problemy Kosmicheskoy Biologii, Tom 15, Funktsional'naya morfoloziya pri ekstremal'nykh vozddeystviyakh." "Nauka" Press, Moscow, 1971

For sale by the National Technical Information Service, Springfield, Virginia 22161

ANNOUNCEMENT

This volume contains data on the functional morphology of various organs and tissues during action on the organisms of several factors of space flight--g-forces, hypoxia and hyperoxia. A detailed account is given of the state of the basic functional systems of the organism--the central nervous system, the respiratory system, the cardiovascular system, the digestive system, the excretory system and the endocrine system. Correlations are made between the physiological and histological indices. Particular attention is given processes occurring at the cellular level. On the basis of data in the literature, and our own observations on flight and ground microtelemetry, histochemistry, and biochemistry, changes in the fine structure and metabolism in cells, tissues, and organs are analyzed. The action mechanisms of external factors on the cells are analyzed in detail.

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- Editor of Vol. 15: P. V. Vasil'yev

NASA TT F-779

FUNCTIONAL AEROPHYSIOLOGY DURING EXTRAVEL ACTIONS

Ye. F. Kotovskiy and L. L. Shibaevskiy

INTRODUCTION

Man's penetration into space is one of the most remarkable achievements of the science and technology of our time. However, the flights of Soviet and American cosmonauts are only the first steps on the long path the the mastery of space.

Ahead are grandiose paths. Man has always dreamed of penetrating the unknown reaches of the universe. He has also far from lost interest in the problem of the existence of life on other heavenly bodies. Man has already been on one of these, the nearby, natural satellite of the Earth. The other planets, in their turn, are significantly greater distances away. But for successful accomplishment of prolonged space flights, it is necessary that the participants maintain their health and a high degree of work capability, especially in the more important periods of the flight. This is possible only with the use of special means and methods of protecting the organism from the unfavorable effects of a series of factors which inevitably arise during flight. Developing such means is one of the most important problems of space medicine. However, without a clear understanding of the mechanisms of action of flight factors on the organism, without a study of the intimate processes occurring in the organism, scientifically based selection of means and methods of protection is, practically, impossible.

Space biology and medicine in the first stage of its development directed its efforts to the investigation of problems of man's general ability to withstand flight, based chiefly on indicators of the functional state of basic systems of the organism.

On the basis of accumulated data, the concept was formed that the rapidly occurring changes in the organism observed during flight and in the post-flight period attest to man's ability sufficiently to withstand various flight factors.

However, the functional indicators of endurance applicable to the organism as a whole do not include the possibility of the appearance of compensated changes in its internal organs, and moreover, tell nothing about the nature of mechanisms of cellular reactions to extremum factors.

The joint efforts of physiologists, morphologists, biochemists and other specialists were required in order to obtain answers to these theoretically important questions.

In our work we have attempted, on the basis of timely investigations and reports which have appeared in the press in the past few years, to make a presentation of the functional morphology of the organism during the action of g-forces on it, as well as the effect of a gas atmosphere with decreased and increased oxygen content. Bearing in mind that the basic structures of the organism, to which its functional capabilities and reactions are linked are the cells, we paid a great deal of attention in the work to questions concerning their condition under the effects of the indicated factors. It is now completely clear that when speaking of a study of the life activity of the organism, it is impossible to count on success without serious cytological research. The literature of space medicine and Biology does not yet contain a wealth of such work. Beginning in 1961, under the direction of Professor V. G. Yeliseyev we, together with our colleagues in the work (Yu. I. Afanas'yev, Yu. N. Eppayev, V. V. Edelev, Yu. N. Kozlov, Yu. V. Koshovarov, B. I. Medvedev, P. G. Oranevskiy, K. K. Rogozhnikova, N. A. Turina) conducted complex investigations which explain the effect of g-forces and the effects of pure oxygen on the morphology of various organs and experimental animals--mice, rats, dogs and monkeys. Thanks to the wide use of general morphological, histological, and electromicroscopic methods, all of the subjects were studied at the organ, tissue, cellular, and subcellular levels. The brain, lungs, heart, the organs of the digestive system, the kidneys, the hemopoietic and several endocrine glands and the skin were studied. The material of this research comprises the basic part of the book. In addition to this, research is included which was carried out in other Soviet and foreign laboratories, so that a more complete explanation might be given for a series of problems affecting the results of our research.

USSR

UDC 591.1

GENIN, A. M., BABCHINSKIY, F. V. and KOPOVSKIY, Ye. F.

"The Effect of Pure Oxygen Under Normal Atmospheric Pressure on Animals"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 1, 1971, pp 69-73

Abstract: Mice and rats were exposed to a mixture of gases consisting of 94 to 98% oxygen and about 0.8% carbon dioxide (relative humidity 60 to 90% and temperature 18 to 23°C) for 5 days to determine whether shifts resulting from the inhalation of pure oxygen are due to increased partial pressure of oxygen in the blood or to pulmonary disturbances and development of asphyxia. During the first 6 hours, inhalation of pure oxygen had a stimulating effect on motor and sexual activity and metabolism. Signs of pathological disorders in the lungs and other organs (perivascular edema and small diapedetic hemorrhages) appeared after 6 to 12 hours' exposure. During the next 12 hours pathological disorders in the lungs intensified although external

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USSR

GENIN, A. M., BABCHINSKIY, F. V., and KOTOVSKIY, Ye. F.,
Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 1,
1971, pp 69-73

respiration remained adequate. Thereafter pathological changes became severe enough to impair gas exchange between the alveoli and blood and gave rise to hypoxia. Hypoxia together with the inhibition of enzymatic activity and hematopoiesis led to the accumulation of toxic substances, metabolic acidosis, and degenerative changes in the parenchymatous organs. It was concluded that inhaling pure oxygen under normal pressure first causes systemic disturbances resulting from increased oxygenation of the blood and then pulmonary disorders, secondary changes in the heart, liver, kidneys, etc., and death.

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- 74 -

USSR

UDC: 532.543

KOTREKHOV, Ye. P.

"Particulars of Calculating the Nonsteady-State Motion of Water in the Mouths of Large Rivers of Siberia"

Tr. Arkt. i antarkt. NII (Works of the Arctic and Antarctic Scientific Research Institute), 1972, 291, pp 20-33 (from RZh-Mekhanika, No 7, Jul 72, Abstract No 7B561)

Translation: The author considers questions of setting the hydrological and hydraulic parameters necessary for calculating the nonsteady-state motion in the mouth sections of Siberian rivers. The principal cause of nonsteady-state motion (in the navigation period) is perceived in the up-and-down oscillations of the level of the sea. Propagation of these oscillations along a river may take place in conjunction with the appreciable influence of wind action. It is proposed that branched channels be reduced to the characteristics of a main channel. A method is indicated for computing the rate-of-flow characteristics needed for taking account of friction in nonsteady-state motion.

The best procedure for numerical calculation of nonsteady-state motion is the method of the Institute of Hydrodynamics of the Siberian

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USSR

KOTREKHOV, Ye. P., Tr. Arkt. i antarkt. NII, 1972, 291, pp 20-33

Department of the USSR for solving complete St. Venant equations. It is recommended that the boundary conditions be given in the form of a hydrograph on the upper end of the mouth section (outside the backwater-affected zone) and a curve for sea level behavior at the lower end of the section. An example is given of numerical calculation of the behavior of levels and flowrates on the 1000-km mouth section of the Yenisey River (the measured behavior of levels was given here on both ends of the section), and agreement is noted between the calculated and actual levels within the section. Bibliography of 26 titles. V. E. SineI'shchikov.

2/2

- 144 -

- USSR

UDC: 532.543

KOTREKHOV, Ye. P.

"Particulars of Calculating the Nonsteady-State Motion of Water in the Mouths of Large Rivers of Siberia"

Tr. Arkt. i antarkt. NII (Works of the Arctic and Antarctic Scientific Research Institute), 1972, 297, pp 26-33 (from RZh-Mekhanika, No 7, Jul 72, Abstract No 7B561)

Translation: The author considers questions of setting the hydrological and hydraulic parameters necessary for calculating the nonsteady-state motion in the mouth sections of Siberian rivers. The principal cause of nonsteady-state motion (in the navigation period) is perceived in the up-and-down oscillations of the level of the sea. Propagation of these oscillations along a river may take place in conjunction with the appreciable influence of wind action. It is proposed that branched channels be reduced to the characteristics of a main channel. A method is indicated for computing the rate-of-flow characteristics needed for taking account of friction in nonsteady-state motion.

The best procedure for numerical calculation of nonsteady-state motion is the method of the Institute of Hydrodynamics of the Siberian

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-USSR

KOTREKHOV, Ye. P., Tr. Arkt. i antarkt. NII, 1972, 227, pp 20-33

Department of the USSR for solving complete St. Venant equations. It is recommended that the boundary conditions be given in the form of a hydrograph on the upper end of the mouth section (outside the backwater-affected zone) and a curve for sea level behavior at the lower end of the section. An example is given of numerical calculation of the behavior of levels and flowrates on the 1000-km mouth section of the Yenisey River (the measured behavior of levels was given here on both ends of the section), and agreement is noted between the calculated and actual levels within the section. Bibliography of 26 titles. V. S. Sinel'shchikov.

2/2

- 44 -

Adsorption

USSR

UDC 541.183.24.661.183.123

GORODNEV, M. S., SALADADZE, K. N., KOTRELEV, M. Y., URMAN, YA. G., and ZHUKOV, M. A., Scientific Research Institute of Plastics, Moscow

"Investigation of the Thermal Stability of Anionites"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 46, Vyp 8, No 2, p 2134

Translation: The effect of heat on the physicochemical properties of anionites made from vinylpyridine monomers of the series was studied.

It was established by differential thermal analysis and thermogravimetry that when anionites are heated in air, two endothermic effects are observed - dehydration and degradation.

It was demonstrated that the physicochemical properties of anion exchangers remain practically unchanged up to 160°C.

Acc. Nr.

AP0045180

Abstracting Service:
CHEMICAL ABST.

5-70

Ref. Code

LR 0191

K

91089m Stabilization of formaldehyde homo- and copoly-
mers. Gur'vanova, V. V.; Kovarskaya, B. M.; Kotrelav, M. V.;
Akutin, M. S. (USSR). *Plast. Masy* 1970, (1), 46-7 (Russ).
Polyformaldehyde (I) (with blocked terminal groups) and dioxo-
lane-trioxane copolymer (II) were subjected to oxidative thermal
degradation in the presence of various stabilizers. The degrada-
tion of I was inhibited by TiO₂ (rutile), presumably due to the
formation of a more dense supramol. structure inhibiting the dif-
fusion of O into I. The degradation of II was most effectively in-
hibited by a ternary compn. consisting of an antioxidant 22-46
[2,2'-methylenebis(4-methyl-6-tert-butylphenol)], H₂NCO(NH)-
NHCN, and TiO₂. (RJR)

110

4

REEL/FRAME
19780080

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Isled. Inst. Plast. Mass. Moscow, USSR). *Vysokomol. Soedin.*, Ser. A 1970, 12(1), 81-8 (Russ). Polyformaldehyde diol (I), polytrioxane, polyformaldehyde diacetate, 98:2 trioxane-dioxolane copolymer (II), and MeO(CH₂O)_nMe (III) (model compounds, n = 1-4) were thermally degraded under a const. vacuum of 10⁻⁴ mm. The degradation of III gave HCHO (>50%), Me₂C=CH₂, CH₂(OMe), and low-mol.-wt. fragments of III. DTA and thermogravimetric anal. curves of I, polyformaldehyde diacetate, and II were a function of the mol. wt. The degradation kinetics parameters of I in the solid phase were dependent on the structure of the polymer. The thermal degradation of pure I (excluding its stable portion) involved reversible depolymer. (H. Pennewis, et al., 1967). The thermal degradation of the stable portion of I and of II gave H₂, HCO₂Me, trioxane, and higher oligomers, suggesting that the breakdown of C-O-C bonds in III followed a radical mechanism.

CKJR J

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REEL/FRA
19800598

Acc. Nr.

AP0048831

Abstracting Service:
CHEMICAL ABST.

5-70

Ref. Code

ZAR 0459

90954c Thermal degradation of polyformaldehyde. Elyu.
menfeld, A. B.; Kotirelev, M. V.; Kuvshinov, B. M. (Nauch.

1/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--STABILIZATION OF POLYCARBONATES -U-

AUTHOR--(05)--KOVARSKAYA, B.M., KOTRELEV, V.N., KIRPICHHNIKOV, P.A.,
LEVANTOVSKAYA, I.I., ITINSKAYA, G.P.
COUNTRY OF INFO--USSR

SCURCE--USSR 264,689
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POLYCARBONATE, CHEMICAL STABILIZER, LOW TEMPERATURE EFFECT,
ORGANIC PHOSPHORUS COMPOUND, ARYL PHOSPHINITE, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1468

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128867

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AA0128867

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYCARBONATES ARE STABILIZED AND TREATED AT LOW TEMPS. USING 0.1-1 WT.PERCENT POLYPHOSPHINITE STABILIZERS (I, N EQUALS 5-10).

UNCLASSIFIED

Semiconductor Technology

USSR

UDC 546.682'19:535.232.1

VOROB'YEV, V. G., KOTRUBENKO, B. P., LANGE, V. N., and SOBOL'EV, V. V.,
Institute of Applied Physics, Academy of Sciences, Moldavian SSR

"Reflection Spectra and Structure of Zones of Highly Alloyed Indium Arsenide"

Moscow, Neorganicheskiye Materialy, Vol. 6, No 8, Aug 70, pp 1524-1525

Abstract: In order to continue studies on the influence of strong alloying on the optical transitions in the $E > E_g$ area in compounds such as $Al_{1-x}In_x$, the authors studied the reflection spectra of etched mirror surfaces of InAs crystals, alloyed with tellurium (0.05, 0.1, 1, 2, and 5 at. %) and selenium (0.5, 1, 2, 5, and 10 at. %). In InAs-Te specimens with increasing alloying the maxima principally expand (particularly the long wave maxima), then the entire band is strongly spread with considerable displacement toward the long wave area. When alloyed with selenium, indium arsenide shows the expansion and displacement of the band with lower concentrations of the impurity. Alloying has comparatively little influence on the short wave portion of the band and a very strong influence on the long wave portion of the band.

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USSR

UDC: 539.3:534.1

KOTS, V. M., LIPOVSKIY, D. Ye., NAZAROV, V. A., TODCHUK, V. A. SHUN, V. M.

"Experimental Studies of Stability of Ribbed Cylindrical Shells and Results of their Statistical Processing"

4-Ya Vses. Konf. Probl. Ustoychivosti v Stroit. Mekh., Tezisy Dokl. [Fourth All-Union Conference on Problems of Stability and Structural Mechanics, Abstracts of Reports -- Collection of Works], Moscow, 1972, pp 132-133 (Translated from Referativnyy Zhurnal Mekhanika, No 12, 1972, Abstract No 12V303, by B. B. Kabanov)

Translation: Results are presented from an experimental study of the stability of reinforced circular cylindrical shells in axial compression. The influence of initial form imperfections, unevenness of loading and geometry of supports is explained. It is suggested that the critical compressive force be determined by the formula

$$N_* = kN_t, \quad k = 0.1 + 0.9e^{-\lambda A}$$

where N_t is the theoretical value of critical force; A is a geometric parameter. Coefficient λ characterizes random perturbations and is determined by statistical processing of the results of experiments. Values of coefficient k

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USSR

Kots, V. M., Lipovskiy, D. Ye., Nazarov, V. A., Todchuk, V. A., Shun, V. M.,
4-Ya Vses. Konf. Probl. Ustoychivosti v Stroit. Mekh., Tezisy Dokl., Moscow,
1972, pp 132-133.

produced in published experiments are presented. The significant influence of
initial imperfections and unevenness of application of compressive loads on
the stability of reinforced shells is noted.

2/2

- 132 -

USSR

UDC 612.741+154.2

VIROGRADOVA, O. L., KOIS, Ya. M., RODIONOV, I. M., and TIMOREVSKIY, V. I.,
Chair of Human and Animal Physiology, Soil Biology Faculty, Moscow State
University; Chair of Physiology, State Central Institute of Physical Culture;
and Department of Labor Physiology, Institute of Labor Hygiene and Occupational
Diseases, Academy of Medical Sciences SSSR, Moscow

"Independence of an Emotionally Induced Increase in Muscle Work Capacity From
the Blood Flow Through Working Muscles"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 5,
1973, pp 781-788

Abstract: Measurements were made on young human subjects instructed to compress
the handle of a fist dynamometer for as long as possible while performing mental
calculations of mathematical problems presented at 3-sec intervals, with the
time allowed for each problem indicated by light flashes and the beat of a metronome.
The results revealed that emotional excitation increases the endurance
of working muscles by about 50% on the average and accelerates blood flow
through resting muscles (plethysmographic measurement). However, there is
no increase in blood flow through the working muscles when the force of con-
traction is 60% of the maximum force that can be generated voluntarily.
Similarly, the endurance of working muscles is increased by 40% and 30%
1/2

USSR

VINOGRADOVA, O. L., et al., Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 5, 1973, pp 781-788

respectively when the effort is only 30% of the maximum but an increase in blood flow is prevented by partial occlusion of the brachial artery or the flow is arrested by complete occlusion of that vessel. The emotionally induced cholinergic discharge by the sympathetic system not only causes vasodilation in resting muscles but also stimulates glycolysis, production of lactic acid, and activation of phosphorylase. It is therefore concluded that the emotionally induced increase in muscle capacity to do static work is due to an augmented anaerobic metabolism in muscle tissue and is independent of the blood flow prevailing in the working muscles.

2/2

- 47 -

USSR

KOTS, Ya. M., State Order of Lenin Central Institute of Physical Culture

"Building Muscle by Electrical Stimulation. I. Theoretical Considerations"

Moscow, Teoriya i Praktika Fizicheskoy Kul'tury, No 3, 1971, pp 64-67

Abstract: Existing methods of training muscles have certain limitations as well as undesirable side effects (e.g., impairment of coordination). Electrical stimulation appears to be free from these shortcomings. Systematic repeated contraction of muscle increases its mass and consequently its strength. In principle, electrical stimulation which also causes muscle to contract should result in a greater muscle mass and strength. Animal experiments as well as the extensive experience gained with the use of electrical stimulation in physical therapy (restoration of parietic muscles after some neurological diseases, injuries to nerves and tendons leading to muscular inactivity), in prostheses, in spaceflight (to prevent the effects of hypokinesia in astronauts), and in various fields of physiological research indicate that the method can be applied to build normal muscle. Among its advantages are: (a) selectivity (only a single muscle or a group of muscles need be stimulated at a time);
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USSR

KOTS, Ya. M., Teoriya i Praktika Fizicheskoy Kul'tury, No 3, 1971, pp 64-67

(b) noninterference with coordination of voluntary movements (because the individual does not participate in the procedure); and (c) minimum fatigue compared with ordinary methods of exercise.

2/2

-- 11 --

USSR

UDC 612.744+612.825.4

BERDINA, N. A., KOLENKO, O. L., KOTS, YA. M., KUZNETSOV, S. P., PADIONOV, I. M., SAVCHENKO, A. P., and TKHOREVSKIY, V. I., Department of Human and Animal Physiology, Biology-Soil Faculty, Moscow State University; Physiology Department of Roentgenology and Radiology, First Moscow Medical Institute; Physiology of Work Section, Institute of Industrial Hygiene and Occupational Diseases, Academy of Medical Sciences USSR, Moscow

"Efficiency and Blood Supply of Skeletal Muscles During Emotional Stress Induced by Mental Arithmetic"

Leningrad, Fiziologicheskiy Zhurnal SSR imeni I. M. Sechenova, No 4, 1971, pp 546-555

Abstract: Emotional stress arising from mental addition and subtraction produced in most human subjects an increase in the volumetric blood flow rates (by 85% on the average) in resting muscles of the forearm. When mental arithmetic was combined with voluntary muscular exertion (on a squeeze dynamometer) or isometric contraction of the antibrachial muscles elicited by electric stimulation of the nerve, muscular performance increased by 46 and 155%, respectively. This happened in only those subjects in whom mental
1/2

USSR

BERDINA, N. A., et al., Fiziologicheskiy Zhurnal SSR imeni I. M. Sechenova, No 4, 1971, pp 546-555

arithmetic intensified the blood flow in resting muscles. Intraarterial injection of atropine markedly slowed the increase in rate of blood flow in resting muscles due to mental arithmetic. It also reduced the length of time exertion on the squeeze dynamometer could be sustained. Stress-induced muscular efficiency is ascribed to increased blood flow not in the working muscles but in the resting muscles as a result of changes in muscle metabolism brought about by the sympathetic nervous system.

2/2

Acc. Nr:

AP0044402

Ref. Code: UR 0239

PRIMARY SOURCE: Fiziologicheskii Zhurnal, 1970, Vol 56,
Nr 1, pp 55-63

(SLOW) AND (FAST) MOTONEURONS DIFFERENTIATED BY EFFECTS OF POST-TETANIC POTENTIATION AND ISCHAEMIC DEAFFERENTATION IN MAN

Kots, Ya. M. & Zaytsev, A. A.

From the Central Institute of Physical Culture, Moscow

Post-tetanic potentiation (PTP) of the H-reflex is revealed after tetanisation of m. tibialis at the 40/sec frequency but is lacking at the 40/sec or 60/sec frequency. PTP of the H-response of the (fast) medial gastrocnemius motor units (increase of the amplitude of the 1st early component of the H-response of m. gastrocnemius med. dis.) appears only following relatively strong tetanisation and is essentially less evident than PTP of the H-response of the (slow) soleus and medial gastrocnemius motor units (increase of the amplitude of the H-response of m. soleus and the 2nd late component of the H-response of m. gastrocnemius medialis). Ischaemic blocking the low threshold afferents causes earlier and stronger changes in the H-response of (slow) soleus and medial gastrocnemius motor units than those in the H-response of (fast) medial gastrocnemius motor units. These facts lead us to conclusions that in man the H-response of the (fast) medial gastrocnemius motor units is evoked by the activation of the more higher threshold afferents than the H-response of (slow) soleus and medial gastrocnemius motor units.

REEL/FRA
19771020

AAO 036091

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3-90

236186 POWERED JET WASHER has supply cylinders 4,7, linked by two four-way cocks 3,6, in such a way that one is charged its air channel links to the atmosphere and its fluid drain line connects to the offtake. In discharge, the air line connects to a controlled pressure space and the drain line links to the spray gun 9,10 as appropriate to a continuous jet wash treatment. 24.11.66. as 1114146/25-7. KOTSAR, S.A. (18.6.69.) Bul.6/24.1.69. Class 48d2. Int.Cl. C23B.

19720852

Acc. No: **AP0048030**

Abstracting Service: **5770**
INTERNAT. AEROSPACE ABST.

Ref. Code:
LR 0185

K

A70-23198 Ion-acoustic instability of a plasma in a strong electromagnetic field (Ionnozvykova nestabilnist' plazmi v poli sil'noi elektromagnitnoi khvili). M. Ya. Klopaenko (Kiev's'ka Derzhavna Universitet, Kiev, Ukrainian SSR) and A. K. Lykhymuk (Akademiya Nauk Ukrain's'koi RSR, Institut Geofiziki, Kiev, Ukrainian SSR). *Ukrains'kii Fizichnii Zhurnal*, vol. 15, Jan. 1970, p. 171-173, in Ukrainian.

Analysis of available theoretical and experimental data according to which a strong electromagnetic wave can generate ion-acoustic oscillations in a weak-collision plasma, and ion-acoustic instability can occur when transverse and ion-acoustic waves propagate in the same direction. The latter result is extended to include the case of arbitrary directions of wave propagation. It is shown that the excitation of ion-acoustic oscillations by an electromagnetic wave is easier to observe in a magnetically confined plasma or with the aid of a plasma waveguide. **V.P.**

A15

1/1

REEL/FRAME
19791712

21

1/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--INFRARED SPECTROSCOPIC STUDY OF THE INTERACTION BETWEEN
BENZALACETOPHENONE AND THE SURFACE OF SILICATE CATALYSTS -U-
AUTHOR--(02)--KARAKCHIYEV, L.G., KOTSARENKO, N.S.
COUNTRY OF INFO--USSR
SOURCE--KINET. KATAL. 1970, 11(2), 513-18
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--IR SPECTRUM, ACETOPHENONE, BENZENE DERIVATIVE, CATALYST,
SILICA GEL, ALUMINUM SILICATE, MAGNESIUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0095 STEP NO--UR/0195770/011/002/0513/0513
CIRC ACCESSION NO--AP0132388
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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132388

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. ADSORPTION OF BENZALACETOPHENONE ON SILICA GEL, ST-MG, AND AL-SI CATALYSTS WAS STUDIED BY IR SPECTROSCOPY. THE CHANGE OF ABSORPTIVITY WITH TIME FOR THE 1660 CM PRIME NEGATIVE (MINUS CO SUB2 PRIME NEGATIVE) BAND WAS THE SAME FOR EACH CATALYST BUT THAT FOR 1610 CM PRIME NEGATIVE (VIBRATION OF C SUB6 H SUB6 RING) BAND CHANGED WITH THE CATALYST. THE STUDY REVEALS THAT OH GROUPS OF CATALYST SURFACE DO NOT PARTICIPATE IN THE FORMATION OF ACIDIC CENTERS AND, THUS, IN IONIZATION OF THE ADSORBED BASE, FACILITY: INST. KATAL., NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

UDC 538.56

RAPOPORT, G. N., KOTSARENKO, N. YA.

"Surface Currents of a Tubular Beam with Screw Electron Trajectories in a Fast Wave Field"

Gor'kiy, Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, Vol XV, No 1, 1972, pp 136-143

Abstract: A study was made of a tubular electron beam aimed by a uniform magnetic field with respect to coaxial screw trajectories in a circular wave guide. The causes of noncoincidence of the results of the "hydrodynamic" and "corpuscular" methods of analyzing the interaction of a rotating electron beam in a fast wave presented in previous papers [A. V. Gaponov, Izv. vyssh. uch. zav. -- Radiofizika, Vol 4, No 3, 547, 1961, Vol 2, No 3, 441, 1959; G. N. Rapoport, Radiotekhnika i elektronika, No 5, 144, 1960; No 5, 649, 1960; L. A. Vaynshteyn, Elektromagnitnyye volny, Soviet Radio Press, Moscow, 1957] are investigated. Consideration of the beam boundary pulsations in the "hydrodynamic" analysis by introducing equivalent surface currents leads to the relativistic dispersion equation obtained by Gaponov in the case of small thickness of the beam wall.

For small thickness δ of the beam wall the coefficients of the dispersion equation do not depend on δ or consequently, on the form of the functions

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RAPOPORT, G. N., et al., Izvestiya vysshikh uchevnykh zavedeniy, Radiofizika,
Vol XV, No 1, 1972, pp 136-143

$v_{||}(\mathbf{r})$ or $\omega_H(\mathbf{r})$ if the variations of these variables are proportional to δ .
The hydrodynamic investigation considering the surface currents in the beam
leads to the correct (in the single-wave approximation) dispersion equation
both for TE and TM waves.

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UDC 533.932

GRECHKO, L. G., KOTSARENKO, N. Ya., FEDORCHENKO, A. M.

"Electromagnetic Wave Fluctuations in a Plasma Layer"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 16, No 11, 1971, pp 1771-1776

Abstract: Although most papers on the theory of fluctuation phenomena in plasmas consider the case of the unlimited plasma, the authors of the present article consider the limited plasma case to be equally interesting from the experimental point of view, since the probes and recording devices are usually outside the plasma. The electromagnetic waves they are examining are slow, and in this theoretical examination they neglect the spatial dispersion. This latter is unimportant for waves propagated with a phase velocity greater than the thermal velocity of the electrons. Using the method of an earlier paper (N. Ya. Kotsarenko and A. M. Fedorchenko, UFZh, 12, 1967, p 1533), the authors obtain correlation functions for finding the spectrum of surface

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USSR

GRECHKO, L. G. et al, Ukrainskiy Fizicheskiy Zhurnal, Vol 16,
No 11, 1971, pp 1771-1776

wave fluctuations. The present article is essentially a continuation of the earlier article cited, in which the correlation functions for a semiinfinite plasma were found and in which it was shown that the presence of a limit leads to surface electromagnetic wave fluctuations within the frequency limits of $0 < \omega < \omega_p / \sqrt{2}$, where ω_p is the plasma Langmuir frequency.

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1/2 021 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--CRITERION OF AN ABSOLUTE AND CONVECTIVE INSTABILITY, AND TRANSITION
OF ABSOLUTE INSTABILITY INTO A CONVECTIVE ONE --U-
AUTHOR--(02)--KOTSARENKO, N.YA., FEDORCHENKO, A.M. K

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL TEKHNIЧЕСКОИ ФИЗИКИ, VOL. 40, JAN. 1970, P. 41-46

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SUBJECT AREAS--PHYSICS

TOPIC TAGS--STABILITY CONSTANT, MAGNETOHYDRODYNAMIC INSTABILITY

CONTROL MARKING--NO RESTRICTIONS

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STEP NO--UR/0057/70/040/000/0041/0046

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PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0046141

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DETERMINATION OF A CRITERION FOR CLASSIFYING INSTABILITIES AS ABSOLUTE OR CONVECTIVE. AS AN EXAMPLE ILLUSTRATING THE USE OF THIS CRITERION, A DISCRETE EQUATION FOR THREE COUPLED WAVES IS EXAMINED. IT IS SHOWN THAT BY INTRODUCING DAMPING IT IS POSSIBLE TO CONVERT THE ABSOLUTE INSTABILITY INTO A CONVECTIVE ONE.

FACILITY: KIEVSKII GOSUDARSTVENNYI UNIVERSITET, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--SOLUTION OF DISPERSION EQUATION FOR PLASMA BEAM SYSTEMS WITH
ALLOWANCE FOR COLLISIONS OF ELECTRONS -U-
AUTHOR--(03)-BARANCHUK, N.S., KOTSARENKO, N.YA., LEVITSKIY, S.M.

COUNTRY OF INFO--USSR

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SUBJECT AREAS--PHYSICS

TOPIC TAGS--DISPERSION EQUATION, PLASMA BEAM, ELECTRON COLLISION

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ABSTRACT/EXTRACT--(U) GP-C-

ABSTRACT. ANALYTICAL SOLUTION OF THE DISPERSION EQUATION FOR THE PLASMA BEAM SYSTEM WITH ALLOWANCE FOR COLLISIONS OF PLASMA ELECTRONS WITH HEAVY PARTICLES. EXPRESSIONS ARE DERIVED FOR COMPLEX COEFFICIENTS CONCERNING THE PROPAGATION OF PLASMA WAVEGUIDE AND BEAM WAVES IN THE NEIGHBORHOOD OF THE SYNCHRONISM. UNDER REGIMES WHICH ARE OFF SYNCHRONISM, THE POSSIBILITY OF A RESISTANCE AMPLIFICATION IS INDICATED. FOR REGIMES FOR WHICH THE WEAK BEAM APPROXIMATION WAS NOT VALID, THE DISPERSION EQUATION WAS SOLVED BY MEANS OF A DIGITAL COMPUTER. FACILITY: KIEVSKII GOSUDARSTVENNYI UNIVERSITET, KIEV, UKRAINIAN SSR.

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